

CSIR

PLATFORMS

for the future

October 2005



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> The first



60
years

The Council for Scientific and Industrial Research (CSIR) was established on 5 October 1945 in terms of the Scientific Research Council Act (No 33 of 1945). The CSIR was accorded the status of a statutory body outside the Public Service, with its main objectives being: “to undertake both pure and applied research for the development of the natural resources and industries of the Union; to train the personnel re-

quired for scientific research within the country; to provide proper co-ordination of research throughout the country, including government departments, technical colleges and universities; and to provide for the collection and dissemination of information with regard to research”.

For the past 60 years, the CSIR has aligned its strategy with the demands of the times, harnessing the collective expertise of its scientists, engineers and support staff to create innovative technological solutions aimed at meeting the development needs of the people of South Africa. The transition to democracy in 1994 brought with it a new focus on reconstruction and transformation, and the CSIR has been among those organisations that have committed themselves to making a significant contribution towards economic growth and socio-economic development.

As South Africa's premier science, technology and innovation organisation, the CSIR plays a singular role in the national context. The organisation's mandate clearly identifies its dual focus to foster industrial and scientific development and to contribute to the improved quality of life of the people of South Africa. The CSIR's responsibilities and contributions therefore straddle the needs of society, government and business.



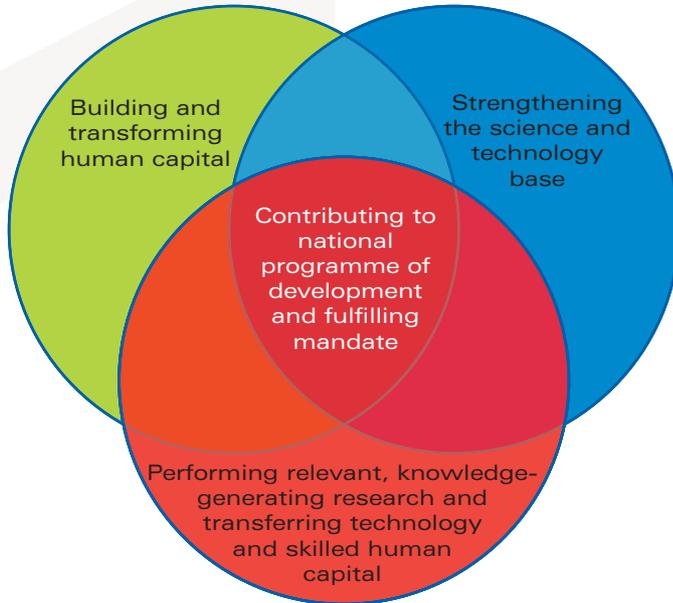
> The way ahead

To ensure that the CSIR achieves the desired levels of growth of its S&T base, development and transformation of its human capital, impact on national challenges and organisational effectiveness and efficiency, the organisation embarked on a major reconfiguration process early in 2004.

The CSIR's new operational and management models (illustrated on pages 8 and 10) have been re-focused on the science core of the organisation. This will ensure that the CSIR remains true to its founding purpose by providing meaningful and considerable support to government in addressing national imperatives, and by contributing to the development of the African continent.



Key elements to address South Africa's S&T needs



CSIR Mandate

The CSIR's mandate is as stipulated in the Scientific Research Council Act (Act 46 of 1988, as amended by Act 71 of 1990), section 3: Objects of CSIR:

"The objects of the CSIR are, through directed and particularly multi-disciplinary research and technological innovation, to foster, in the national interest and in fields which in its opinion should receive preference, industrial and scientific development, either by itself or in co-operation with principals from the private or public sectors, and thereby to contribute to the improvement of the quality of life of the people of the Republic, and to perform any other functions that may be assigned to the CSIR by or under this Act."

CSIR > Building a national icon

Dr Sibusiso Sibisi, CSIR President and CEO, shares his thoughts on the organisation's reconfiguration and its 60th anniversary

Over the past 60 years, South Africa's leading scientists and innovators have contributed their knowledge, ingenuity and passion to shape the CSIR as an organisation that has responded with agility and resilience to changing environments, unpredictable expectations and emerging opportunities. Yet the challenges we face today demand that we continue to renew and reshape our focus.



Early in 2004, as we approached the CSIR's 60th birthday, we found ourselves at an opportune moment to effect fundamental repositioning and reconfiguration to ensure that the CSIR remains true to its commitment to the nation, namely to foster industrial and scientific development in South Africa, contribute to economic growth and competitiveness, and to ultimately improve the quality of life of South Africa's people.

Having considered the appropriateness of our structure, our activities and our focus, the reconfiguration process has resulted in an organisation optimally positioned to fulfil its mandate through directed, multi-disciplinary research and technological innovation, developing S&T knowledge, people and infrastructure, and delivering products and services based on science and research excellence.

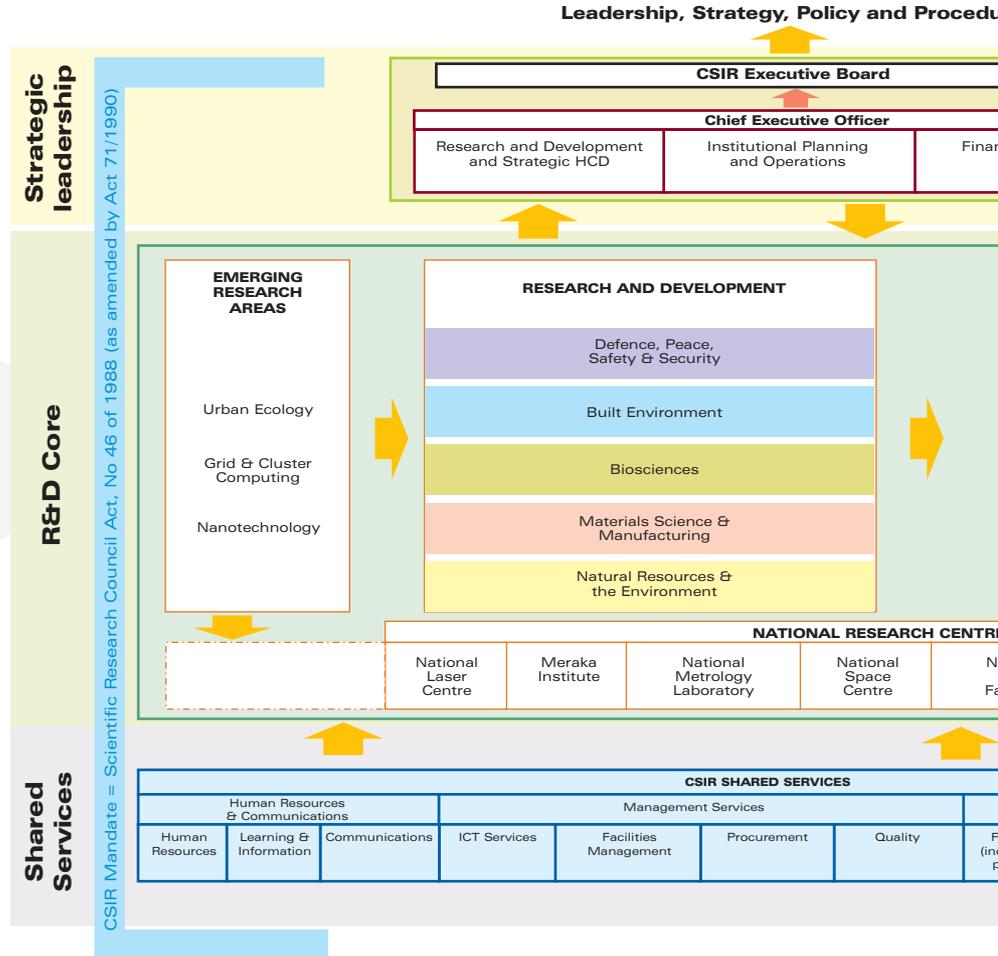
As we look back on the achievements of the past 60 years, the CSIR emerges as an internationally accepted role model of a successful research and technology organisation in a developing country. We play a unique,

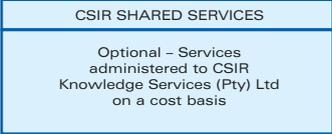
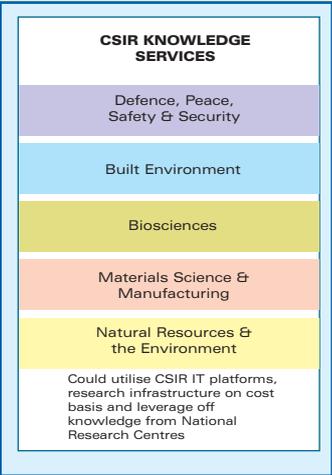
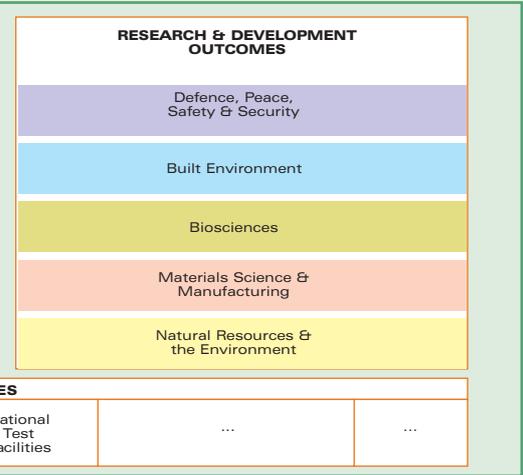
catalytic role in facilitating the National System of Innovation to deliver solutions to address our country's national priorities. We are important partners to our stakeholders and clients, to whom we supply a range of R&D solutions in the fields of public good and public gain. Our ties with international research counterparts provide us with access to complementary expertise and infrastructure that improves our ability to address key issues.

Building on this solid foundation, the CSIR is entering an era of regeneration in S&T, taking the first steps towards building a national S&T icon that will make a visible difference in our country. We invite you, our clients, partners and stakeholders, to join us on this challenging journey.

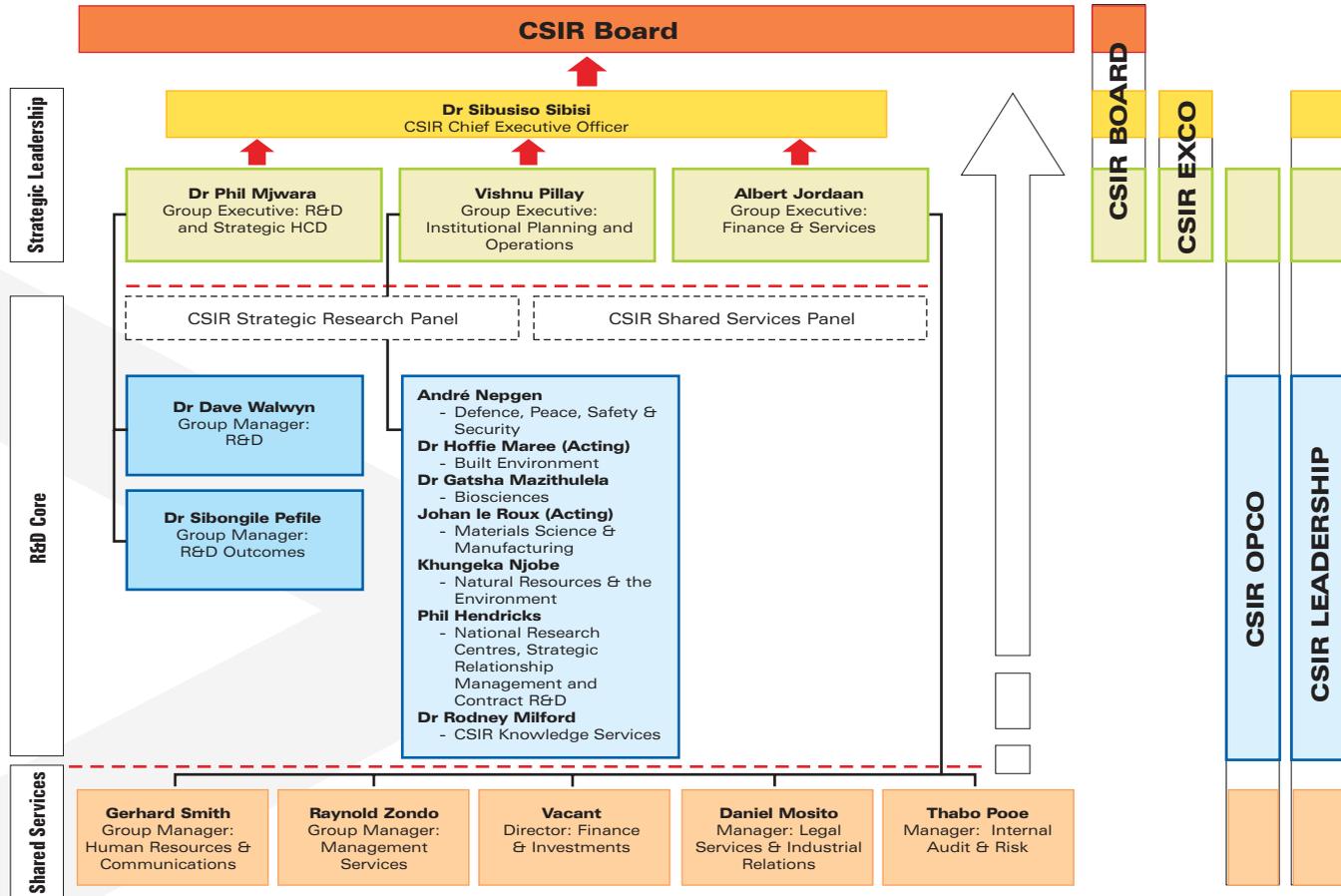
> CSIR Operations Model

The new CSIR operations model represents a step change in the reconfiguration of the organisation, focusing on the most critical aspects that will underpin the organisation of the future.





> CSIR Management Model





The strategic planning and leadership level

Successful management of knowledge intensive organisations involves more than just good governance and the vertical diffusion of instructions to the research fraternity. The strategic planning and leadership layer in the CSIR plays the principal role in shaping the organisation within the established context of national policy and the mandate.

Its characteristics will include:

- custodianship of the mandate and compliance to ensure fulfilment of the requirements
- establishing and maintaining relationships with government, industry, academia and the common public, in specific instances including international affairs
- maintaining an external focus and ensuring that the imperatives and strategic priorities of the CSIR's stakeholders are served effectively through the CSIR's research portfolio
- governance and compliance to the Public Finance Management Act, not through direct control of activities but by defining policy, procedures and undertaking good audit practices
- ensuring the appropriate investment strategy of the government-allocated Parliamentary Grant into the respective demarcated areas identified for support
- policy and procedures for the institutional programme on human capital development, and
- leadership of the institution to ensure its continued relevance and effectiveness.

R&D core of the new CSIR

Re-focusing on the science core of the CSIR ensures that the organisation is strengthened in the arena of science that pursues outcomes addressing the challenges of sustainable socio-economic development in Africa. The key building blocks include:

- **Emerging research areas** new areas of science that the CSIR wishes to pursue. Such areas could be unique to the local circumstances or could be an investment in an area that is notably successful internationally and needs to be established for local competitiveness. Emerging research areas could be of any size, cut across several research areas or be unique to research areas, and could have potential to grow into key science and technology competencies within the science and technology base of the organisation or become national centres following the initial stages of investment. They will be funded substantially through investment of Parliamentary Grant, although certain categories of external income may also be applicable.
- **Core research and development base** this consists of key competency platforms drawing together research fields and scientific disciplines

assembled to align with the needs of specific government departments, primary, secondary and tertiary industry sectors and society in key areas of socio-economic impact.

Each area understands strategic stakeholder requirements and focuses on managing a portfolio of S&T competencies and research directions that contributes most meaningfully to attainment of scientific objectives within the sectors addressed. Each area embraces R&D and R&D outcomes, which are handled as an integral part of the research and innovation value chain.

The following five areas are defined: biosciences; the built environment; defence, peace, safety and security; materials science and manufacturing; and natural resources and the environment.

- **National research centres** these are facilities of strategic importance for African science over at least the next two decades, and currently include the Meraka Institute (African advanced institute for information and communications technology), the National Laser Centre, the National Metrology Laboratory and the Satellite Applications Centre.



> Overview of
operating units
& national
research centres

> Operating Units



Biosciences

Core focus:

Providing bioscience solutions that improve health, fight disease and support private and public sector industry in a manner that is sensitive to economic realities and the natural environment of the societies we live in.

Competence areas

- **Discovery chemistry**

Uses a combination of chemical technologies and target-based (rational) approaches to identify and modify activity of biologically active molecules, resulting in novel and improved, or affordable, health solutions for poverty-related diseases. Includes high-throughput synthesis and purification; medicinal chemistry; chemical profiling and cheminformatics

- **Bioprospecting**

Utilises leads derived from indigenous knowledge on medicinal plants to identify new drug leads and develop herbal medicines. Includes bioassay and screening; and natural product chemistry

- **Discovery biology**

Uses knowledge of molecular structure, cellular metabolism and regulation as the basis for elucidation of molecular reaction mechanisms and the development of new therapeutic targets to provide novel health solutions for diseases of poverty. Includes bioinformatics; functional genomics; structural biology; cellular metabolism and molecular screens

- **Plant biotechnology**

Focuses on the use of plants (crops) as a system for the delivery of health solutions and improved nutrition to under-nourished communities. Includes plant molecular biology; nutritional analysis and interpretation, plant physiology, biosafety, plant tissue culture; and crop nutritional improvement

- **Bioprocess technologies**

Uses multi-disciplinary expertise to develop bioprocess technologies aimed at enhancing competitiveness, thereby creating opportunities to expand the emerging biosciences industry. Includes glycobiology; prokaryotic and eukaryotic expression systems; and enzyme technologies

- **Product and process development**

Focuses on the delivery end of the value chain for exploitation of technologies and products in South Africa, for beneficiation of biologically derived natural resources and to enhance the competitiveness of industry



Built Environment

Core focus:

Supporting South Africa's competitive performance and the welfare and quality of life of its people through the development of an efficient and globally competitive built environment system; appropriate and efficient components of the system and relevant technologies to support the above, through R&D, technological innovation and selected specialised value-added services.

Competence areas

- Integrated planning and delivery systems
Integrated planning and spatial development; geo-modelling; sustainable human settlements; development informatics, economics and financing
- Infrastructure engineering
Transport infrastructure engineering; coastal engineering and port infrastructure; housing technology and building physics; laboratories and workshops; accelerated pavement testing
- Construction
Construction and maintenance methods and materials; construction industry development
- Facilities planning, design and operation
Facilities development and operation
- Infrastructure systems and operations
Public and freight transport operations; intelligent transport systems and traffic management; network asset management systems; bulk municipal services
- Centre for Logistics
Performance indicators; modelling and simulation; macro and sector logistics; small business logistics

The unit houses a number of agency-type functions on behalf of government and in support of industry. These currently include Agrément South Africa, the Asphalt Academy, and the Technology Transfer Centre.



Defence, Peace, Safety and Security

Core focus:

Contributing to an improved understanding of crime, violence and conflict and the application of innovative S&T and systems-based solutions; being the 'in-house' S&T capability of key stakeholders in defence, peace, safety, security and aerospace; partnering with local industry to improve industrial capabilities and international competitiveness; contributing to national science, engineering and technology themes, industry development initiatives and human capital development objectives; and developing and maintaining national research facilities and infrastructures.

Competence areas

- Safety and security
Crime prevention; developmental peace support; crime combating and cyber security
- Radar and early warning (EW) systems
Radar/EW research and applications; experimental EW systems; experimental radar systems
- Optronic sensor systems
Self-protection and platform survivability; photonics, testing, evaluation and measurement science; observation and surveillance
- Systems modelling
Mathematical and computational modelling; complex adaptive and netted systems; socio-technical systems
- Landwards sciences
Detonics, ballistics and vehicle protection; operator support systems
- Special operations technologies
Air and landwards; maritime; counter-terror
- Aeronautics systems
Experimental aerodynamics; computational mechanics; aero-structures
- National research facilities
Aeronautics; explosives; optronics; radar

Materials Science and Manufacturing

Core focus:

Conducting leading research and innovation, with partners and stakeholders, in the fields of materials and manufacturing in support of industry competitiveness, national human resource development, and improved quality of life for all South Africans.



Competence areas

- Metals and metals processes
Fundamental properties and modelling; primary processes, alloying and processing; engineering design and analysis methods
- Polymers, ceramics and composites
Smart materials for drug delivery and tissue engineering; advanced industrial polymers and composites
- Fibres and textiles
Non-woven; fibre processing; fibre modification; clothing technology
- Manufacturing science and technology
Digital and micro manufacturing; automation and control; advanced robotics; modelling and simulation for manufacture; e-manufacturing

- Energy and processes
Fuel cells; clean coal technologies; renewables; industrial processes
- Sensor science and technology
Smart structures; electro-optic sensing and imaging; sonar; applied sensor systems; sensor manufacturing

The unit hosts a number of agency-type functions on behalf of government and in support of industry. These currently include the National Technology Transfer Centre, the National Cleaner Production Centre and the Advanced Manufacturing Technology Strategy. The unit also hosts the CSIR's Enterprise Development Centre.



Natural Resources and the Environment

Core focus:

Conducting world-class, directed inter-disciplinary research and technological innovation, with partners and stakeholders, in the fields of natural resources and the environment to contribute to the social, economic and environmental improvement of South Africa and Africa.

Competence areas

- Mining
Mechanisation, automation and communication; rock engineering; applied geoscience; mine occupational health and safety
- Forestry resource optimisation
Tree improvement; forest assessment; wood science; fibre processing
- Pollution and waste
Water treatment and remediation; air quality and energy externality; water, coastal and marine pollution; integrated and industrial waste management
- Water resources
Groundwater science; water resource management; water quality assessment; aquatic science
- Resource-based sustainable development
Environmental and resource economics; resources for the second economy; strategic environmental management; sustainability science; environmental management service
- Ecosystems
Ecosystem processes and dynamics; eco-physiology; marine and estuarine ecosystems; coastal zone management; biodiversity; earth observation

> National Research Centres



Meraka

Institute

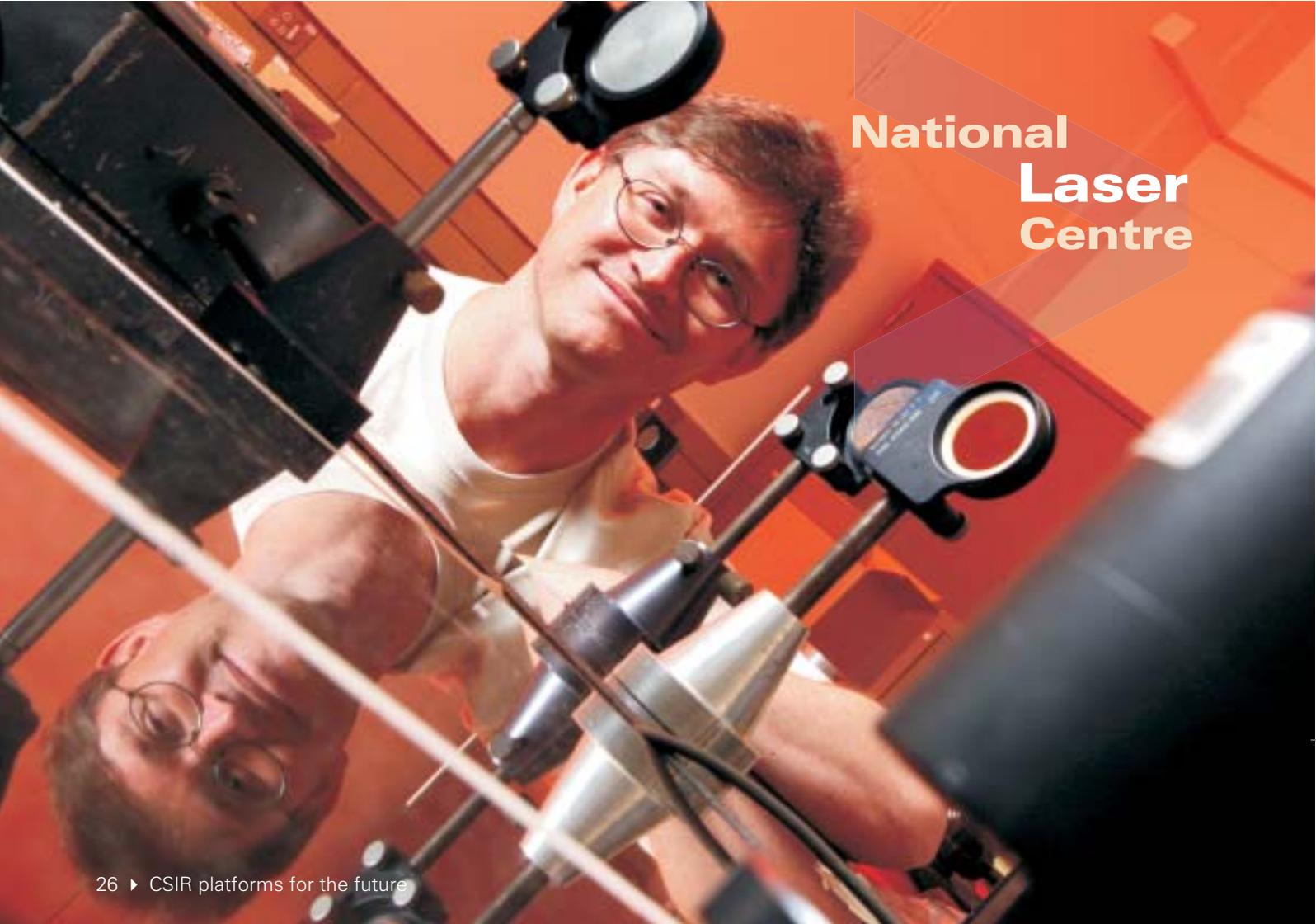
(African advanced institute for information and communications technology)

Core focus:

The Institute aims to facilitate national economic and social development through human capital development; application innovation (taking existing research and realising societal benefits through more applied R&D) and advanced research in selected technology domains relevant to the local context, in cooperation with TEIs.

Competence areas

- **Wireless Africa**
Research into sustainable ICT for developing countries
- **Human language technologies**
Facilitates access to information and services, and interaction with technology, through language
- **Digital Doorway**
Uses minimally invasive education to promote large-scale computer literacy
- **Open Source Centre**
Promotes understanding and the use of free and open source software
- **National Accessibility Portal (NAP)**
Uses ICT to help empower persons with disabilities to live independently
- **ICT in education**
Drives development of national strategy for ICT in education R&D and innovation
- **Earth observation research unit**
Provides satellite images from sensors such as Landsat, MODIS, EROS, NOAA; geo-information product development; acquisition, processing and cataloguing of satellite images

A photograph of two scientists in a laboratory setting. The scientist in the foreground is wearing glasses and a white t-shirt, looking towards the camera with a slight smile. The scientist in the background is also wearing glasses and is focused on a piece of equipment. The background is a warm, orange-red color. The text 'National Laser Centre' is overlaid in the top right corner.

National Laser Centre

Core focus:

The National Laser Centre focuses its expertise and resources on the development of laser and laser application technology through R&D and innovation in order to improve the use of this technology in the local context, thereby improving the global competitiveness of the South African industry.

Competence areas

- Laser-assisted material processing
Laser welding, cladding, cleaning, corrosion prevention, texturing, ablation and hardening
- Laser source development
Laser materials; laser physics; non-linear optics; beam shaping techniques
- Laser spectroscopy
Laser-induced plasma spectroscopy; differential absorption LIDAR; time-of-flight mass spectrometry

- Biophotonics

Studying interaction of light with biological systems and materials with the aim of obtaining information on the structure, functioning and possible manipulation of biological materials

The NLC also manages a number of facilities and initiatives, including the laser rental pool, user facility, African Laser Centre and public understanding of lasers programme (PULSE).



National Metrology Laboratory

Core focus:

The CSIR is empowered by the Measuring Units and National Measuring Standards Act (Act 76 of 1973, as amended by Act 24 of 1998) to keep and maintain all national measurement standards for South Africa.

The CSIR National Metrology Laboratory supports South Africa's global competitiveness through the provision of internationally acceptable measurement standards and measurements.

Competence areas

- Electromagnetic metrology
Realises, maintains and disseminates the national measurement standards for DC low frequency, time and frequency, radio frequency, fibre optics, photometry and radiometry, temperature and humidity, ionising radiation; radio-activity standards
- Metrology in chemistry
Primary gas mixture preparation; calibration of gas analysers; impurity analysis, surface and microanalysis; certification of inorganic reference materials; inorganic mass spectrometry; value assignment of organic materials

- Mechanical metrology
Acoustics, dimensional, force, pressure, flow, mass, volume, and vibration measurements; realises, maintains and disseminates basic System of International Units of length, national prototype of mass and quantities of acoustics, force, pressure and vibration

The NML operates the secretariat of SADC Cooperation in Measurement Traceability and interacts with other SADC and African metrology organisations.



Satellite Applications Centre

Core focus:

To provide world-class telemetry, tracking and command (TT&C) services, disseminate low and medium-resolution satellite data via various media and ensure the archiving of earth observation data that are deemed to be in the public domain.

Competence areas

- Earth observation data ingest, archiving, image processing and distribution
- Advisory role in earth observation satellite sensor portfolio
- Data management
- Distribution and maintenance of quasi-real time remote sensing information products
- TT&C services, including launch support, transfer orbit support, in-orbit testing, lifecycle support, emergency support, carrier monitoring and remote sensing TM reception
- Capabilities and facilities to directly support any ground segment requirements, from the establishment of high-tech facilities through to operations and maintenance of such facilities

CSIR

Knowledge Services

This area explicitly addresses the management of services based on the routine application of existing knowledge, encompassing specialised and differentiated services. Since a different operating culture is required to sustain these commercially-driven operations, CSIR Knowledge Services resides outside the core CSIR R&D operations, with management control exercised through an Executive Director. All service activities that are classified as routine in nature will be conducted through CSIR Knowledge Services.

Core competence areas:

- Policy planning and development
- Engineering/technical (traffic management and education; engineering forensics; product design and engineering specialist consulting; forensic fire investigation; earth observation value addition; sports technology)
- Technical services (chemical and engineering laboratories and testing)



CSIR

Shared Services

The philosophy of shared services is one of the key fundamental changes in the new CSIR operations model and is expected to ultimately provide the biggest gains in operational efficiency to the organisation.

The shared services concept is designed to combine the economies of scale achieved through the pooling of resources with the responsiveness of decentralised decision-making.

Shared services include the following areas:

- Human resources, communications, and learning and information
- Management services
- Finance and investments
- Legal services and industrial relations
- Internal audit services



> Managing the refocused CSIR

Introducing

**the people in
executive leadership
and management positions**



President & CEO
Dr Sibusiso Sibisi

Dr Sibusiso Sibisi took office as President of the CSIR in January 2002, prior to which he held the position of Deputy Vice-Chancellor: Research and Innovation at the University of Cape Town. He holds a PhD in applied mathematics and theoretical physics from Cambridge University, and was a Fulbright Fellow at the California Institute of Technology in 1988. Sibisi returned to Cambridge University in 1989 to assume a research position at the Department of Applied Mathematics and Theoretical Physics.

In 1991 he co-founded a Cambridge-based scientific consultancy that sought commercial markets for academic research. On his return to South Africa in 1997, he joined Plessey as Executive Director where he was responsible for managing and directing R&D in telecommunications technologies. Sibisi is well known in science circles for the role he played as chairperson of the National Advisory Council on Innovation (NACI) from 1998 to 2001.

**Group Executive: R&D
and Strategic Human
Capital Development**
Dr Phil Mjwara



Dr Phil Mjwara served as manager of the CSIR National Laser Centre before his appointment to his current position in June 2005. He obtained his PhD in solid state physics from the University of the Witwatersrand (Wits) in 1992, and also lectured at Wits and the University of South Africa (Unisa).

Mjwara was a director for technology development at the former Department of Arts, Culture, Science and Technology, and was appointed director of the department's Technology Foresight project. He then became Professor of technology policy at the University of Pretoria and was a part-time consultant to the CSIR and NACI.

He currently serves on a number of boards, is the general secretary of the Academy of Science of South Africa and was recently appointed as chairperson of the Board of the African Laser Centre.



**Group Executive:
Institutional Planning &
Operations**
Vishnu Pillay

Vishnu Pillay joined the CSIR as Director of CSIR Mining Technology in 2004, where he played an instrumental role in securing future mining research and saw to the design and implementation of a new collaborative research model which was embraced by the platinum industry. He has most recently led the transformation team that designed a new CSIR for the future.

His career in mining spans 21 years with Gold Fields, an international mining company, where he worked as a senior consultant for mine planning and resource management prior to his appointment at the CSIR. He was a member of the Gold Fields operations committee which was responsible for managing the company's local and international operations. He holds an MSc in applied Geology from the Maharajah Sayajirao University in India.

He is a Fellow of the Geological Society of South Africa. In 2004 he was appointed by the Minister of Minerals and Energy Affairs to serve on the board of Mintek as well as on its audit committee.



**Group Executive:
Finance and Services**
Albert Jordaan

Albert Jordaan joined the CSIR in 1993 as Executive Vice-President of Finance and Commercialisation. He also served as Acting CEO of the CSIR from January to December 2001.

Jordaan's academic qualifications include a BComm (Hons) and a CTA, CA (SA) from the University of Pretoria. He has also completed the Advanced Executive Programme at Unisa.

He holds directorships in the Technology Finance Corporation (Pty) Ltd, the South African Inventions and Development Corporation, Technovent (Pty) Ltd, Plasmatherm (Pty) Ltd and Quo-Tec (Pty) Ltd in London. He was, until recently, the CSIR's Director of the Snowden Group, where he steered the investment towards a successful conclusion in December 2004.



Group Manager: R&D
Dr Dave Walwyn

As CSIR Group Manager: R&D, Dr Dave Walwyn is responsible for the management of the research portfolio within the CSIR, providing strategic advice to the CSIR leadership team on S&T trends and opportunities for investment, monitoring SET excellence in the organisation and establishing linkages with other research organisations.

Before his appointment to his current position, Walwyn was Manager: Innovation and Business Development at CSIR Food, Biological and Chemical Technologies, where his responsibilities included a broad portfolio of activities connected to the research and innovation value chain.

Prior to joining the CSIR, Walwyn spent 10 years at AECL in its R&D department as a process development engineer. He was co-author on a number of policy papers, including the Green Paper on S&T, the White Paper on S&T, the National Biotechnology Strategy and the Chemical Industry section of the Advanced Manufacturing Strategy. He has a PhD in bioorganic chemistry from Cambridge University.

Group Manager: R&D
Outcomes
Dr Sibongile Pefile



Dr Sibongile Pefile served as CSIR Intellectual Property (IP) and Innovation Manager before being appointed to her current position in June 2005. With a PhD in pharmacology, Pefile moved into the IP field on her appointment as programme director at the Centre for the Management of Intellectual Property in Health Research and Development (MIHR) in Oxford in the United Kingdom. This position entailed planning, implementation and coordination of MIHR capacity development programmes in IP management.

Her work as a consultant for the Rockefeller Foundation resulted in the formation of the Centre for MIHR. Prior to consulting to the foundation, she spent several years working for the technology and business development directorate at the Medical Research Council where she was responsible for establishing the indigenous knowledge systems office.

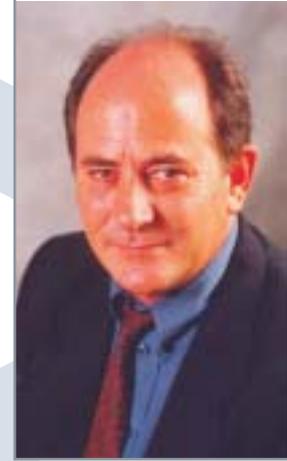


**Executive Director:
Strategic Relationship
Management and
Contract R&D, and
Director of Research
Centres**
Phil Hendricks

Prior to his appointment to his current position, Phil Hendricks served as Director of CSIR Roads and Transport Technology for six years. Hendricks obtained his MSc and MEng in civil engineering from the University of California at Berkeley. He has completed several leadership courses such as the Advanced Leadership Programme and the Leadership Competencies Programme at IMD, Switzerland. Before joining the CSIR, he worked as a civil engineering consultant and lectured at the Peninsula Technikon.

Hendricks has served as a board member of Agrément South Africa and as international committee member for organisations such as the International Society for Asphalt Pavements and the Association of Southern African National Road Agencies.

**Executive Director:
Knowledge Services**
Dr Rodney Milford



Dr Rodney Milford served as Director of CSIR Building and Construction Technology for more than three years before his appointment to his current position. He is President of the International Council for Research and Innovation in Building and Construction for the 2004/07 triennium, a member of the Construction Industry Development Board, and a member of the Board of Agrément South Africa. He is a past President of the South African Institution of Civil Engineering (SAICE), a Fellow of SAICE, and a Fellow of the South African Academy of Engineering.

Milford holds a diploma (DIC) from the Imperial College of Science and Technology, London, and a PhD from the University of Illinois at Urbana-Champaign in the USA. He has been involved in several national and industry policy initiatives and was a member of the drafting team of the South African government's White Paper on Creating an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry.



**Executive Director:
Biosciences**
Dr Gatsha Mazithulela

Dr Gatsha Mazithulela holds a PhD in genetic engineering and molecular virology. He has academic and professional experience in R&D within the biotechnology sectors of government and large multinational business and has an MBA with a speciality in the valuation of new technologies using Real Options financial mathematics. Before joining the CSIR, he held the positions of deputy director of the South African AIDS Vaccine Initiative at the Medical Research Council and managing director of Secure Plan Investment Ltd in the United Kingdom. In addition, he was a postdoctoral research fellow at the University of Nottingham and a visiting scientist at DuPont Agricultural Chemicals in the USA.

Mazithulela is a member of the CSIR Strategic Research Panel and a trustee of Cape Biotech, a Biotechnology Regional Innovation Centre. He has been the recipient of several international awards which include the Fogarty AIDS International Training and Research Scholarship in 2004 and held the Rockefeller Foundation pre-doctoral fellowship from 1995 to 1998.



**Acting Executive
Director: Built
Environment**
Dr HOFFIE MAREE

Dr HOFFIE MAREE has an academic background in engineering, including a DEng from the University of Pretoria. He joined the CSIR in 1993 as Director of the then CSIR Division of Roads and Transport Technology after holding various senior positions in the private sector, the last of these being director: Stewart Scott International and managing director of Scowalab (Pty) Ltd. In 1999 he was appointed Executive Director of the CSIR's Manufacturing and Materials Technology unit.

Maree started a number of new national technology-focused initiatives such as the Advanced Manufacturing Technology Strategy (AMTS) and the Advanced Metals Initiative; various new R&D initiatives, e.g. in the field of nanotechnology; and a number of national centres, including the Automotive Industry Development Centre. He is currently chair of the CSIR's S&T Strategy Committee and serves on various CSIR-related boards and forums.



**Executive Director:
Defence, Peace, Safety
and Security**
André Neppen

André Neppen joined the CSIR in January 1981, and moved to the Division of Materials Science and Technology in 1983, where he specialised in the design and development of piezoelectric transducer systems. He obtained his MSc (Eng) on the subject of sonar array design from the University of Stellenbosch.

In 1987, Neppen established the Sensor Systems group at the CSIR, focusing on the development of electro-acoustic and fibre-optic sensors for defence and commercial markets in South African and abroad. He moved to CSIR Defence Technology in 1998 as manager of the Defence Electronics Programme and was appointed Director of CSIR Defence Technology in December 2001.

**Acting Executive
Director: Materials
Science and
Manufacturing**
Johan le Roux



Johan le Roux has been acting as Executive Director: Materials Science and Manufacturing since June 2005. Prior to that, he was Business and Market Development Manager at CSIR Materials and Manufacturing Technology. His responsibilities included the development and implementation of growth strategies, customer and stakeholder management processes and systems, and new strategic initiatives.

Le Roux has held several other management positions since joining the CSIR in 1990. He was appointed Acting Director of CSIR Textek towards the end of 2000, in which capacity he managed the development and implementation of a new strategy and structure for the CSIR regional office in Port Elizabeth. He studied botany and zoology at the University of Port Elizabeth and completed an advanced management development programme at UCT Business School in 2001.



**Executive Director:
Natural Resources
and the Environment**
Khungeka Njobe

Khungeka Njobe, former Director of CSIR Water, Environment and Forestry Technology, now heads the Natural Resources and the Environment operating unit. She has several years' experience in the policy and technical fields, particularly in the S&T and environment sectors.

Prior to joining the CSIR, she was director of biodiversity policy and planning at the National Botanical Institute. She also served as a director for biodiversity management at the Department of Environmental Affairs and Tourism.

Njobe holds an MSc in zoology from the University of Pretoria. She currently serves on the Flower Valley Conservation Trust and the South African Reference Group on Women in Science and Technology. In February 2005 she was appointed chair of the National Environmental Advisory Forum by the Minister of Environmental Affairs and Tourism for a two-year term.



**Group Manager:
Human Resources and
Communications**
Gerhard Smith

Prior to his appointment as CSIR Group Manager: Human Resources and Communications in July 2005, Gerhard Smith served as CSIR Group Manager: Human Resources (HR). His 20-year career at the CSIR has included management positions in areas as diverse as HR, business development and technology. He served as acting Director for CSIR Water, Environment and Forestry Technology and CSIR Mining Technology from 2002 to 2004.

Smith has a BA in industrial psychology and is registered with the South African Board of Personnel Practice. He was recently awarded a CSIR/Innovation Fund Inventors Award for the successful patenting of a CSIR innovation. Smith was the first support staff member to receive a CSIR Top Achiever Award.



**Group Manager:
Management Services**
Raynold Zondo

Raynold Zondo started working at the CSIR in 2002 as a quality manager in the Manufacturing and Materials Technology unit. In the same year, he was appointed as the unit's Manager of Operations Support and participated in developing the CSIR's black economic empowerment strategy. He has also been instrumental in the establishment of the CSIR's Quality Steering Committee and ISO 17025 Forum to drive quality and operational efficiency within the organisation.

Zondo holds an MTech in biotechnology, a National Higher Diploma in quality assurance and has recently completed an MSc in project management from the University of Pretoria. He has extensive experience in the implementation of business management systems such as those based on ISO 9001, ISO 17025, and ISO 14001. Prior to joining the CSIR, he worked for private companies in the chemical and pharmaceutical industries as an R&D and quality chemist. He also has experience as a manager in the regulatory and quality fields. He is a non-executive board member of the South African Quality Institute.



Manager: Legal Services and Industrial Relations
Daniel Mosito

Daniel Mosito joined the CSIR in September 1997 as a legal adviser, and was promoted to his current position as Manager: Legal Services and Industrial Relations, in April 2001. His main responsibility is to act as CSIR governance watchdog. He also advises the organisation on a range of legal issues, such as commercial transactions, labour law and insurance. He liaises with consultants and handles negotiations around litigation and general intellectual property issues.

Prior to joining the CSIR, Mosito worked for Adams & Adams Attorneys in Johannesburg, where he handled commercial, civil and general litigation work and drafted commercial contracts for individual and corporate clients. He has a Bachelor of Law (B Juris) degree from the University of Fort Hare and a LLB from the University of Natal and a Higher Diploma in Company Law from the University of the Witwatersrand. Mosito was admitted as an attorney of the Supreme Court of South Africa in February 1997.



Manager: CSIR Internal Audit Services
Thabo Pooe

Thabo Pooe joined the CSIR as an internal auditor in 1994 and was promoted to his current position as Manager: CSIR Internal Audit Services, in May 2001. He is a member of the Institute of Internal Auditors and served as the chairperson of the Institute of Internal Auditors in the Pretoria region for two terms. Pooe is a member of the Certified Fraud Examiners Association of South Africa and served on the Technikon South Africa (now Tshwane University of Technology) Advisory Committee on Internal Audit. He also served on the University of Pretoria's Board on the Endorsed Internal Audit Programme.

Pooe is an audit committee member of the Construction Industry Development Board and the Construction Industry Board. He has a BCom degree and recently completed a fraud examiners certification programme through the University of Pretoria. He is currently working towards a postgraduate diploma in company direction.

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